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Hence, according to this parallax, the brighter star is a "supergiant" and the fainter one a dwarf, the spectral class of the latter being what would normally be expected for the secondary component in a double star with the foregoing absolute magnitudes and primary of class F8. The trigonometric parallaxes yield much lower values for the absolute magnitudes; *e. g.*, from Kapteyn's composite parallax of 0″.047[2], they are respectively +0.5 and +7.2, and from Dr. A. E. Glancy's determination of 0″.086[3], +1.8 and +8.5. Both of these parallaxes would indicate that the companion is an unusually faint star for its spectral class, but it is likely, especially in view of the relation prevailing between the spectral classes of the components, that their absolute magnitudes, as derived from the spectroscopic parallax, are the most reliable.

In the vast majority of double-star systems so far investigated, where the components are of equal magnitude, they are found to be almost identical in spectral class. A striking exception, however, which has recently been observed here, is Σ2245 (= *β. G. C.* 8243, 1900 $\alpha = 17^h 52^m.1$, $\delta = +18^\circ\ 21'$, p. a. = 112°, dist. = 2″.5). Both components of this pair are of the same visual magnitude (7.3), but the *preceding* one is of class G5, whereas the *following* is of class B9. This double therefore belongs in the same group of rare stars as *γ Circini*, of which the components, of magnitudes 5.2 and 5.3 and 1″.2 asunder, have, from the composite character of their combined spectrum, been classified at Harvard[4] as respectively of classes G and B5. Altho the value of the parallax of Σ2245 is not known to me at the date of writing, it seems probable, from the peculiar relation existing between the spectra of its components, that the star is a giant.

Frederick C. Leonard.

Lick Observatory, Mount Hamilton, Calif., July 15, 1921.

Burnham's General Catalogue of Double Stars and Its Extension*

(Abstract)

A practically complete record of the history up to 1906 of every known double star within 121° of the north pole of the sky is contained in Burnham's *General Catalogue of Double Stars*. Progress in the discovery and measurement of double stars has been so rapid since 1906 that an extension of this catalogue is already demanded. Such an extension was planned by Professor Eric Doolittle, at Burnham's request, and had been carried well toward completion before his untimely death, in September, 1920. In fulfilment of my promise to Professor Doolittle, I have undertaken to complete this work and all the data, including Burnham's extensive collection of double star literature, have accordingly been sent to me.

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[2] *Gronigen Publ.*, No. 24, 18, 1910.
[3] *Astron. Jour.*, **31**, 70, 1918.
[4] *Annals, H. C. O.*, **56**, 240, 1912.

The material has been classified and arranged for convenient reference and considerable progress has been made in bringing the card catalogue (which will finally contain some 20,000 numbers) up to date. I am now in position to offer lists of stars specially worth remeasuring to any observers who wish to cooperate in making the catalogue as valuable as possible. It is estimated that it will require at least three more years to complete the work and prepare the manuscript for the printer. Robert G. Aitken.

On the Zodiacal Light*

(Abstract)

Photometric observations of the Zodiacal Light show rapid changes in the brightness sometimes from day to day. The bright and the faint parts show an opposite tendency to approach and to recede from the Sun. Frequently a marked bifurcation is observed. A seasonal change from a prominent morning to a prominent evening phenomenon towards the end of the year is found to be sometimes very abrupt sometimes more gradual.

The Zodiacal Light is in continuous connection with the Counterglow if this is visible. The decrease in intensity from the Sun is in accordance with the assumption of constant density in a cylindric beam directed towards the Sun. This places the Counterglow as an illumination effect of matter in opposition to the Sun at a distance of some astronomical units. The Counterglow has also seasonal changes independent of its apparent position with respect to the Milky Way and the terrestrial latitude of the observer.

The shadow effect along the bright cone of the Zodiacal Light and the phase effect in the Counterglow point to considerable density and size of the particles. This is not contradicted by the scarcity of meteors colliding with the Earth, because of the restricted extension of the zodiacal beam which is not exactly in the